

Relationship Between Quadriceps Angle, Body Parameters, and Occurrence of Lower Extremity Injuries of Sri Lankan National Level Athletes

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Both intrinsic and extrinsic factors may be the reason for sports injuries. This study aimed to identify the association of some intrinsic factors for injuries by studying the relationship between Quadriceps (Q) angles with body parameters (Gender, height, weight), the occurrence of lower extremity injuries, and contributing factors to the Q angle (femoral anteversion, tibial torsion, and genu valgum) among National level athletes in Sri Lanka. The study was conducted at the Institute of Sports Medicine, Colombo, Sri Lanka. The study sample consisted of national-level male and female athletes with injuries (n=17) and without injuries (n=16) to lower limbs. Athletes who had recent acute lower limb injuries were excluded from the study. Consent was obtained from the study participants by explaining the investigation procedure before conducting the tests and measurements. Body height, body weight, and Q angle of both limbs were measured using a stadiometer, electrical weighing scale, and goniometer respectively. Three clinical tests were done to identify the femoral anteversion, tibial torsion, and genu valgum of both limbs of injured and non-injured athletes. Data were collected from January to February 2022. According to the results, there is no significant difference between the Q angle of injured (Injured limb $p=0.776$, non-injured limb $p=0.739$) and non-injured (Right $p=0.974$, Left $p=0.786$) athletes' reference to the gender. There is a significant negative correlation between the Q angle and body height of both genders in spite of having injuries. Though there is no significant mean difference of Q angles between injured and non-injured limbs of males ($p=0.171$), there is a significant mean difference of Q angle between injured and non-injured limbs of females ($p=0.013$). There is a positive significant correlation between Q angle and femoral anteversion, tibial torsion, and genu valgum in both injured and non-injured athletes. It may be concluded that height, femoral anteversion, tibial torsion, and genu valgum had an impact on the magnitude of Q-angle. Females are more prone to have lower limb injury occurrences than males because of their higher Q angles than males.

Keywords: Quadricep Angle, Femoral Anteversion, Tibial Torsion, Genu Valgum